MicroVAX Diagnostic Monitor Release Notes

Order Number AA-GO3AO-TN

These release notes describe restrictions, undocumented features, and other essential information about the MicroVAX Diagnostic Monitor (MDM) Version 3.0, Release 125. These release notes supersede all other MDM documentation.

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Preface

These release notes describe new features, enhancements, and bug fixes for the MicroVAX Diagnostic Monitor (MDM) Version 3.0 Release 125 as they apply to diagnostic development.

Intended Audience

These release notes are intended for the following people:

- System managers who are installing MDM
- Any user who wants to use MDM

Document Structure

These notes are organized as follows:

- Chapter 1 lists updates.
- Chapter 2 lists new features and enhancements.
- Chapter 3 lists problems and corrections.

Associated Documents

The following is a list of the available MDM documents:

- *MDM Programmer's Guide*
- *MDM Development Kit Installation Guide*
- *MDM User's Guide*
- *MDM Ethernet Server User's Guide*
- *MDM Reference Card*

Conventions

This book uses the following conventions:

KEY	Indicates a key on your keyboard.
CTRL/key	Indicates control keys. For example, Control C is shown as CTRL/C.
Bold print after prompt	Indicates user input. means that the user types the information that is in bold print.
UPPERCASE characters	Indicate input that you should type exactly as shown.
lowercase characters	Indicate input that you should replace with an appropriate word or phrase. For example, in the following interactive command: MDM>>**SELECT devicename** SELECT should be typed as shown, but *devicename* should be replaced with the actual name of a device.

Chapter 1
Updates

This chapter updates information necessary to run MicroVAX Diagnostic Monitor (MDM).

1.1 General MDM Updates

This section covers updates on hardware and installation requirements.

1.1.1 One Megabyte System Support Restriction

This release does not support 1M-byte systems. For support of systems with only 1M byte of memory, see MDM version 2.11. Commands governing 1M-byte systems in the *MDM User's Guide* and on the *MDM Reference Card* are no longer correct.

1.1.2 MDM Install Procedure Restriction

Installation of the MDM development kit on a VMS system requires that C be installed first; otherwise, the following messages occur when you attempt to build MAKEPIN image:

```
%DCL-W-IVVERB, unrecognized command verb - check validity
and spelling

error opening VMI$ROOT:[SYSUPD.MDM202]MAKEPIN.OBJ -
file not found.
```

1.1.3 QNA and TMSCP

IOADDRES and SYSGEN (prior to VMS Version 5.02) are different with this configuration of two QNA devices and two TMSCP devices in the system. IOADDRES puts the second TMSCP device at vector 304, while SYSGEN puts the device at 310. This difference throws off all the devices in floating space after that. Any system that runs VMS will fail MDM if the settings are not changed. The outputs are:

```
IOADDRES      SYSGEN
QNA174440     120174440  120
QNA174460     300174460  300
TMSCP174500   260174500  260
TMSCP160404   304160404  310
```

1.1.4 CONNECT Command

When using the CONNECT command, enter a file name of up to ten characters. However, the SHOW BUS command displays only the first eight characters of the filename.

1.1.5 Device Diagnostic Support

Table 1–1 provides updates on device support.

Table 1–1: Device Diagnostic Support

Controller	Device	Revision	File Name
CPU	KA620	H	NAKAA
	KA630		
	KA640		
	KA650		
MEMORY	KA620	G	NAMSA
	MS630		
MEMORY	MS650	D	NAMSA
DPV11	LP25	G	NALPA
	LP26		
	LP27		
	LG01		
	LG02		
RQDX2 & RQDX3	RX50	O	NARXA
	RD52		
	RD53		
	RD54		

Table 1–1 (Cont.): Device Diagnostic Support

Controller	Device	Revision	File Name
KDA50-Q & KLESI	RA81	K	NADA
	RA82		
	RA70		
	RA60		
	RC25		
TQK50	TK50	G	NATKA
	TK70		
DEQNA	QNA/DELQA	L	NAXQA
DLVJ1	-	D	NADA
DZQ11 & DZV11	-	F	NADA
DRV11-WA	-	H	NADA
DRV11-J	-	E	NADRB
DPV11	-	G	NADA
DMV11	-	H	NADMA
RRD50	-	G	NARRA
KMV11A (KMV1A)	-	D	NAKMA
KMV11B (KMV1B)	-	B	NAKMA
IEQ11	-	B	NAIEA
DMV11	DMV11	G	NADMA
	DZQ11		
	CXY08		
	CXA16		
	CXB16		
	CXF32		
	DHF11		
DFA01		D	NADFA

Table 1–1 (Cont.): Device Diagnostic Support

Controller	Device	Revision	File Name
VCB01	-	F	NAVCA
KWV11-C	-	F	NAKWA
ADV11-DA	-	E	NAADA
AAV11-DA	-	F	NAAAA
AAV11-C	-	B	NAAAC
ADV11-C	-	A	NAADC
AXV11-C	-	D	NAAXA
VCB02	-	E	NAVCB
DSV11	-	F	NADSA
VSV11	VSV21-AA	E	NAVVA
	VSV21-CA		
	VSV90		
DRQ11-C	-	B	NADQA
LNV11	-	B	NALAA
LNV11	-	B	NALNA
TU81E	-	F	NATUA
TSV05	-	F	NATSA
DRQ3B	-	E	NAQBA
IBQ01	-	B	NAIBA
IAV11-A	-	C	NAIAA
IAV11-B	-	B	NAIAB
IDV11-A	-	B	NAIDA
IDV11-B	-	E	NAIDB
IDV11-C	-	C	NAIDC
IDV11-D	-	C	NAIDD
MIRA	-	E	NAMIA
KXJ11	-	F	NAKXA

Table 1–1 (Cont.): Device Diagnostic Support

Controller	Device	Revision	File Name
ADQ32	-	E	NAAQA
RV20	-	D	NARVA
DESNA	-	C	NACQA
DTC-04	-	A	NADTA
IGQ11	-	A	NAIGA
KWB11-W	-	A	NAKWB
POLARSTAR	-	A	NAQCA
GS03-WD-DHV11	-	A	NAGSA
GS03-WD-DQZ11	-	A	NAGSB
LANCE	-	B	NALAN
DSSI	-	B	NADSI
DELIX[1]	-	B	NADXA

[1] Indicates diagnostics that are included on the media, but are not supported in the auto-configuration information. To use these diagnostics the custom configuration commands must be used.

1.1.6 New Device Support

MDM supports the following new devices:

- NACQAC—DESNA Diagnostic
- NAQCAA—Polarstar
- NADTAA—DTC-04
- NAIGAA—IGQ11 Diagnostic
- NAKWBA—KWB11-W Diagnostic
- NAGSAA—GS03-WD-DHV11 Diagnostic
- NAGSBA—GS03-WD-DZQ11 Diagnostic
- NALANB—LANCE Diagnostic
- NADSIB—DSSI Diagnostic
- NAKAAH—KA640 Diagnostic

1.1.7 MDM System Notes and Updates

You will find a Software Performance Report (SPR) form in each kit. These SPR forms provide two functions. First, they are a means of letting the software developers know as soon as possible about problems found in the product. Secondly, they provide users a way to offer suggestions based on actual use of the product.

1.1.8 TK50 Load Times

Table 1–2 is a chart of TK50 and TK70 load times for MDM versions 114 through 125. Load time is the length of time necessary for a system to load and configure the diagnostics for the individual devices in the system. The listed times do not include the length of time needed for the monitor to load initially (the elapsed time from the boot command to the display of the disclaimer).

Table 1–2: TK Load Times (in minutes)

Release	TK50	TK70	TK50	TK70	TK50	TK70	TK50	TK70
	(CONFIG 1)		(CONFIG 2)		(CONFIG 3)		(CONFIG 4)	
114	07:49	na*	06:50	na*	19:52	na*	09:30	na*
115	25:55	na*	39:44	na*	35:23	na*	14:21	na*
116	09:33	na*	12:21	na*	24:49	na*	12:19	na*
116A	11:21	na*	09:47	na*	25:59	na*	12:54	na*
118	10:25	na*	10:30	na*	29:46	na*	13:06	na*
120	10:12	06:55	10:11	07:01	31:02	23:21	13:15	07:55
121	07:30	04:59	6:04	05:57	17:49	15:22	07:40	05:55

* Load times are listed in minutes. Versions before 120 did not support TK70 drives. No comparisons can be made between those versions and versions between 120 and 125.

Key to Configuration Devices

- Config 1 = CPU, MEM, DEQNA, RQDX2, DMV11, TK
- Config 2 = CPU, MEM, DEQNA, TK, TSV05, DMV11, KDA50, CXY08
- Config 3 = CPU, MEM, RQDX3, TK, DEQNA, DMV11, KDA50, RC25, DZV11, DZQ11, DPV11, KWV11-C
- Config 4 = CPU, MEM, DEQNA, RQDX3, TK, VCB02

Table 1–2 (Cont.): TK Load Times (in minutes)

Release	TK50	TK70	TK50	TK70	TK50	TK70	TK50	TK70
122	06:18	05:08	06:22	05:07	19:04	16:28	07:48	06:03
123	07:26	05:11	06:29	05:12	19:41	16:42	09:17	06:10
124	09:36	07:00	09:17	06:50	21:55	18:52	11:08	08:18
125	10:05	07:40	10:10	07:30	22:25	21:04	12:12	08:45

The difference of load times on the same system between KA650 CPU and MicroVAX CPU is less than 3%. The KA650 is slightly faster than the MicroVAX. Thus, load times are not CPU-dependent.

1.1.9 Order Number Reference

Table 1–3 lists order numbers for current diagnostics.

Table 1–3: Order Number Reference

Part Number	Title
ZNA01-C3	Customer Diagnostics on RX50
ZNA01-C5	Customer Diagnostics on TK50
ZNA02-GZ	MV DIAG MDM ENET CUST DOC
ZNA02-P5	MV DIAG MDM ENET CUST TK50
ZNA02-PH	MV DIAG MDM ENET CUST RL02
ZNA02-PM	MV DIAG MDM ENET CUST 1600 bpi MT
ZNA05-C3	Service Diagnostics for VS520 only on RX50
ZNA05-C5	Service Diagnostics for VS520 only on TK50
ZNA06-C3	Maintenance diagnostics on RX50
ZNA06-C5	Maintenance diagnostics on TK50
ZNA06-GZ	Maintenance documentation
ZNA07-C5	MV DIAG MDM ENET MAINT TK50
ZNA07-CH	MV DIAG MDM ENET MAINT RL02
ZNA07-CM	MV DIAG MDM ENET MAINT 1600 bpi MT
ZNA07-GZ	MV DIAG MDM ENET MAINT DOC

Table 1–3 (Cont.): Order Number Reference

Part Number	Title
ZNA08-C5	MV DIAG ULTRIX ENET MAINT TK50
ZNA08-CM	MV DIAG ULTRIX ENET MAINT 16 bpi MT
ZNA08-GZ	MV DIAG ULTRIX ENET MAINT DOC
ZNA09-GZ	MV DIAG ULTRIX ENET CUST DOC
ZNA09-P5	MV DIAG ULTRIX ENET CUST TK50
ZNA09-PM	MV DIAG ULTRIX ENET CUST 1600 bpi MT
ZNA10-C5	MDM.SYS RA/RD CUSTOMER DIAG TK50
ZNA10-CM	MDM.SYS RA/RD CUSTOMER DIAG 1600 bpi MT
ZNA11-C5	MDM.SYS RA/RD MAINT DIAG TK50
ZNA11-CM	MDM.SYS RA/RD MAINT DIAG 1600 bpi MT

1.1.10 Automatic Distribution of Diagnostics

A diagnostic contact has been designated for each geographic area within the U.S. (See Table 1–4.) Field personnel should work with their area contact for all diagnostic needs. This includes additions and deletions to the ADS mailing lists for all VAX, PDP–11, MicroVAX, MICRO–11, and KLAD systems, and any newly released system. They should also work with their area contact to resolve problems.

Table 1–4: Area Contacts for Diagnostic Distribution

Area	Contact	Direct	DTN	ENET Address
CENTRAL	CORINE GORDON	312-640-0301	421-5640	DECMAIL::GORDON
CSC-ATLANTA	ESTHER CREEK	404-953-6174	435-3293	DECMAIL@IPO
CSC-COLORADO	FRANK MENDEZ	719-548-5587	522-5587	NEXUS::MENDEZ
EAST CENTRAL	KAREN PICKETT	313-347-5406	471-5406	USFHSL::PICKETT
IN-DEC	MADDY VEGA	508-467-8274	262-8274	SENIOR::VEGA
MID-ATLANTIC	PAT KOZLOWSKI	215-283-4241	328-4241	DECMAIL@PHH
NEW YORK	BERNIE COUILLARD	201-884-6780	335-6780	OBIWAN::COUILLARD
NORTHEAST	PEARL MAGIERA	508-441-6624	288-6624	NERSW5::MAGIERA
SOUTH CENTRAL	CAROLYN DUERKSEN	214-702-4606	483-4606	DPOMAI::DUERKSEN
SOUTHERN	GWEN BRINKLEY	404-257-2455	351-2455	ODIXIE::GBRINKLEY
SOUTHWEST	PEGGIE ROSE_KOZO	714-261-4418	NONE	SWAM1::ROSE_KOZO
WESTERN	SUSAN BROWN	408-496-3014	521-3014	WRIFOR::BROWNSU
GIA	SONNY NEWSON	719-548-5499	522-5499	BSS::NEWSON

1.2 MDM Diagnostic Notes and Updates

All diagnostics have been rebuilt and are incompatible with previous versions of MDM. The diagnostics are source-compatible only. The following diagnostics have been revised for Version 3.0.

1.2.1 NAAAAF

Uses READ_REGISTER rather than WRITE_REGISTER to check for Device Register.

1.2.2 NAADAE

Uses READ_REGISTER rather than WRITE_REGISTER to test for presence of Device Register.

1.2.3 NAAQAE

Replaced ELN calls with DSL$ calls and fixed spurious exerciser errors in high unit count configurations.

1.2.4 NACQAC

The fixed-timing problem that caused diagnostic failure in service exerciser test has been corrected.

1.2.5 NADHAJ

Corrected modem sizing in manufacturing mode.

1.2.6 NADRAH

Added DSL$IDENTIFY_FRU command to CONFIGURE section.

1.2.7 NADSAF

Fixed a Verify Mode problem, where if Verify Mode was selected after running in Service Mode, the program tried to use external loopbacks.

1.2.8 NADTAA

This is a new diagnostic.

1.2.9 NAGSAA

This is a new diagnostic. (GS03-WD-DHV11)

1.2.10 NAGSBA

This is a new diagnostic. (GS03-WD-DZQ11)

1.2.11 NAIAAC

This diagnostic now checks inputs in utility 1, 2, and 3 to determine if they are in the specified range.

1.2.12 NAIDBE

This diagnostic now checks inputs in utility 2 to disallow illegal inputs; the respective inputs are more specific.

1.2.13 NAIGAA

This is a new diagnostic.

1.2.14 NAKAAH

This is a new KA6XX CPU diagnostic.

1.2.15 NAKDAK

Fixed utilities 2, 3, and 4. Disable with CTRL/C, RC25 reported as both units with fixed media, utility 1 will not accept unit number 0, utility 2 incorrectly reports no errors after error, and utility 5 fails due to excessive stock requirements.

1.2.16 NAKWAK

This diagnostic converts GET_TIME calls to DSL$_GET_TIME calls.

1.2.17 NAKWBA

This is a new diagnostic.

1.2.18 NAKXAF

The errors in utility message have been fixed; changed error in utility to read "200G."

1.2.19 NALNAB

This diagnostic reserves memory directly from operating system's memory.

1.2.20 NAMIAE

The general setup message in this diagnostic has been changed to be less confusing.

1.2.21 NAMSAJ

This diagnostic deallocates memory in configure.

1.2.22 NAQCAA

This is a new diagnostic.

1.2.23 NARQAA

This is a new diagnostic.

1.2.24 NARVAD

In this diagnostic, SHOW DEVICE FRU displays the appropriate number of FRUs, not five.

1.2.25 NATUAF

In this diagnostic, utility test 1 is changed to check input for range and to prompt user to try again if input is out of range.

1.2.26 NAVVAE

Support for VSV22, included set up message and supported error checking on user input.

1.2.27 NAXQAL

Eliminated error message confusion.

Chapter 2
Enhancements and New Features

This chapter discusses enhancements and new features to MDM.

2.1 New Features

The following sections describe new features.

2.1.1 Remote Console

The Remote Console feature allows MDM to operate as a remote or local console. Pressing CTRL/C in Remote Console returns the user to the VMS DCL& prompt. Take the following steps to use remote console:

NOTE: *For systems with no console, start with step 9.*

1. Set your default directory to MDM$MAINT.
2. Set the ncp settings on the target node.
   - Make sure other nodes are not pointing to the target.
   - Set the load file to MDM$MAINT:NA11Ax.SYS/(x=revision level): (x=i for 125). The following .com file is an example of what is required to establish the ncp settings.

```
$ncp set node junky service circuit qna--0
$ncp set node junky host nave
$ncp set node junky hard addr aa--00--03--01--10--ac
$ncp set node junky load file MDM$MAINT:NA11Ax.SYS
                                    for QNA and
                               MDM$MAINT:NA12Ax.SYS
                                    for LANCE
$ncp show node junky char

Note: (x=revision level) : (x=1 for 125)
```

3. Boot the target node by entering:

   B XQA0

   (The uVDOS banner should appear on the target console.)

4. After the target node boots up, enter on the host system:

   ```
   $ RUN FE$REMOTE
   ```

5. In response to the FE$REMOTE program prompt, enter the target node name.

6. In response to the FE$REMOTE program prompt, enter any 5-digit password.

7. The MDM disclaimer screen should then come up.

8. Enter CTRL/Y to terminate the remote session. After you leave the remote console session, your system may be in a state where it switches between the initial process and the process spawned by MDM. To exit from this state, type:

   ```
   MDM>> STOP username_1
   ```

   username_1 refers to your username at log on. For example, from the system account, type "STOP system_1."

9. When using a system with no console, power down the system first. Make sure that:

   - All bootable devices are off line except for the network.
   - The break enable switch is set to disable. This switch is located on the CPU bulkhead where the console is plugged in. The switch should be set to the setting which shows the dot outside the circle. Power the system back up. When the LEDs on the CPU bulkhead display a 0, it means that the NA11 file is loaded provided that the NA11 image is the NCP load file spec. For systems with no console, proceed to step 4 and continue.

2.1.2 SHOW BUS Command

In previous MDM releases, if an unrecognized device was encountered during the sniff, the sniff was terminated. Now, the sniff continues to the end of the address space. The unknown device is listed as UNKNOWN with a SHOW BUS command. Any device that is found during the extended sniff that is not recognized is also listed as UNKNOWN.

The following example lists two UNKNOWN devices at addresses 175450 and 177040. These may or may not be DIGITAL devices. The only valid information known about each device is its base CSR address. The file name, vector, and BR level are all unknown. The CONNECT command would have to be used in order for these devices to be tested. As with anything shown in the SHOW BUS display, if any of the fields are not set, the device remains ignored during the configuration process. In order for

a diagnostic to be loaded against a device, all parameters must have been filled in.

```
                Autoconfigure set ON

FILENAME      CSR      VECTOR     BR_LEVEL    STATUS

 NAKAAB     160000       000          0       CONNECTED
 NAMSAC     160002       000          0       CONNECTED
 NARXAN     172150       154          4       CONNECTED
 NAXQAI     174440       120          5       CONNECTED
 UNKNOWN    175450       000          0       IGNORED
 NADHAH     160440       300          4       CONNECTED
 UNKNOWN    177040       000          0       IGNORED
```

2.1.3 Diagnostic File Names

In previous MDM releases, diagnostic file names were generated by placing a prefix of GGSKM before the diagnostic device indicator. Under Version 3.0, the diagnostic file name is the same as the file name of its source code. This means that all diagnostics are placed on the distribution media as NAdev.EXE, where NA is a prefix and 'dev' is the device indicator of the diagnostic.

Under this method, the build procedure for diagnostics is changed. The diagnostics are now linked to the /EXE=NAdev qualifier.

This change alters the following user interfaces:

- The SHOW BUS command—The file name in the SHOW BUS display now reflects the NAdev format.
- The CONNECT command—The user now enters the file name under the new name structure.

2.1.4 Booting from RA and RD Disks

In Version 3.0 of MDM, kits are available for booting MDM from RDxx devices and RAxx devices. The kits are available in both customer and maintenance form and are provided on TK50 and 1600 bpi media in the form of VMS savesets. These kits are usable only on VMS systems, not on ULTRIX systems.

NOTE: *See RA/RD Kit Release Note for more details. Prior to use of this feature, each customer must sign this form and a copy of it must be kept in the Field Service Office.*

2.1.5 Changes to Error Handling and Reporting

Version 3.0 contains a global error handler manager:

- To provide an error handler for each program block
- To display an error message with status codes and halt MDM

A sample error message is :

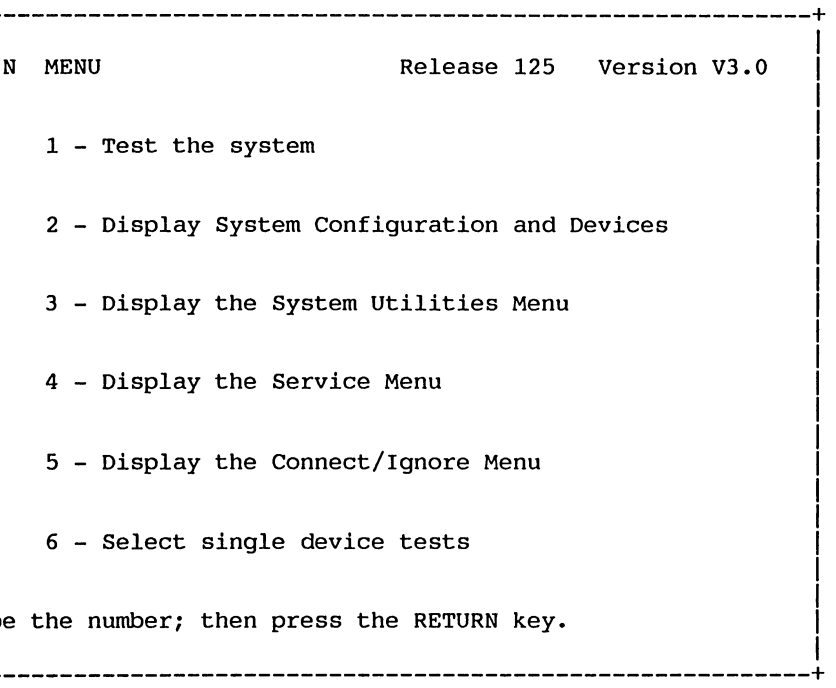
```
!!!!!!-- SYSTEM HALTED - FATAL ERROR - INI --!!!!!!
!!!!!!-- THE ERROR EXCEPTION NUMBER --!!!!!!
```

2.1.6 Custom Configuring Through Menus

The ability to use the custom configure feature of MDM was added to the customer kit in version 2.30 of MDM. With this feature, customer kits can test each device individually. The flow of screens and user input are outlined in the following sections.

NOTE: *This screen's prompts appear on the screen one line at a time.*

Figure 2-1: Screen 5

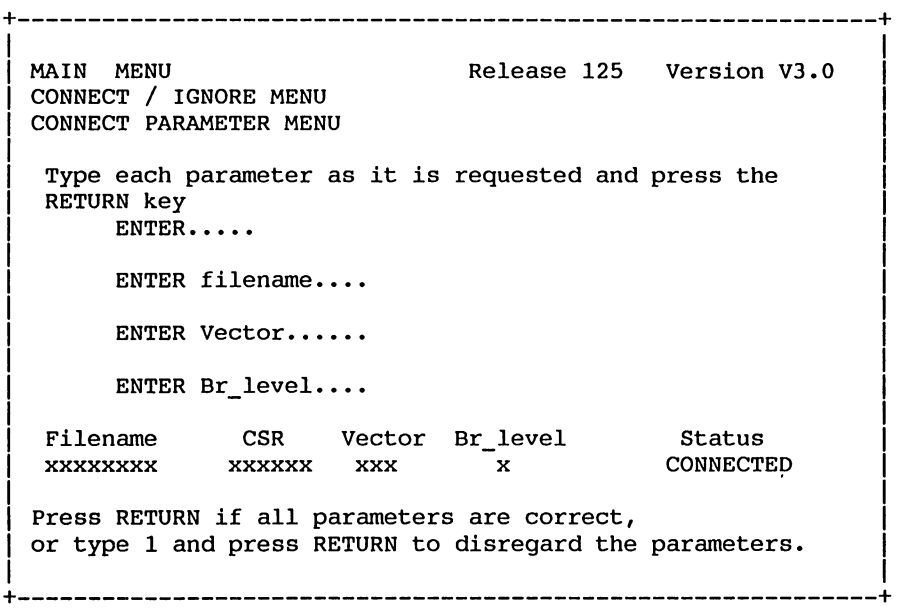

MAIN MENU
Release 125 Version V3.0
1 - Test the system
2 - Display System Configuration and Devices
3 - Display the System Utilities Menu
4 - Display the Service Menu
5 - Display the Connect/Ignore Menu
6 - Select single device tests
Type the number; then press the RETURN key.

1 - goes to screen 6
2 - goes to screen 7
3 - goes to screen 8
4 - goes to screen 9
5 - goes to screen 23
6 - goes to screen 28
return - goes to screen 22

Figure 2-2: Screen 23

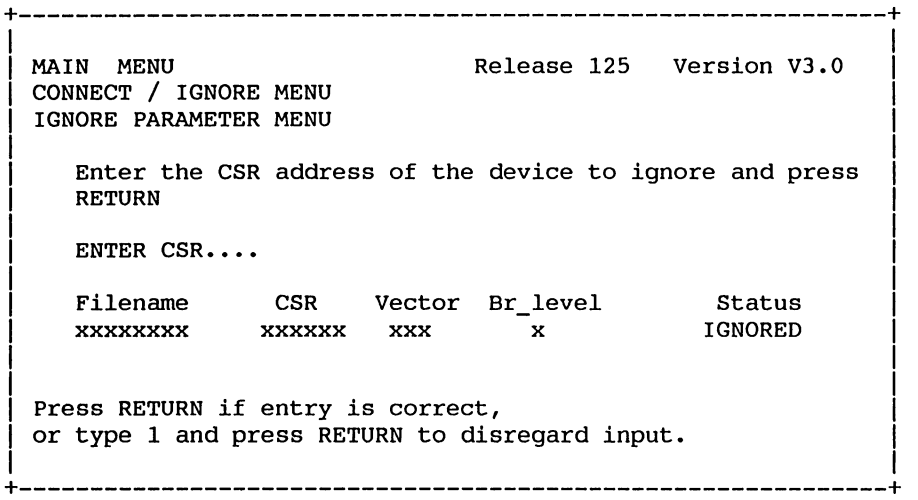
```
+-------------------------------------------------------------+
|                                                             |
| MAIN  MENU                      Release 125   Version V3.0  |
| CONNECT / IGNORE MENU                                       |
|                     ** CAUTION**                            |
| The following menus should be used with caution.  If  you   |
| are unfamiliar with the proper usage of these menus please  |
| exit to the main menu.                                      |
|                                                             |
| To exit from connect/ignore menus at any time type CTRL-C,  |
| by holding down the CTRL key and keying C.  CTRL-C will     |
| cause any connects or ignores for this session to be        |
| disregarded.                                                |
|                                                             |
|       1 - Connect parameter menu                            |
|                                                             |
|       2 - Ignore parameter menu                             |
|                                                             |
|       3 - Display Connect / Ignore                          |
|                                                             |
|       4 - Activate Connect / Ignore                         |
|                                                             |
|  Type the number; then press the RETURN key, or type 0 and  |
|  press RETURN to return to the Main Menu.                   |
+-------------------------------------------------------------+

       1 - goes to screen 24
       2 - goes to screen 25
       3 - goes to screen 26
       4 - goes to screen 27
       return - goes to screen 22
```

Figure 2-3: Screen 24


MAIN MENU Release 125 Version V3.0
CONNECT / IGNORE MENU
CONNECT PARAMETER MENU
Type each parameter as it is requested and press the RETURN key
ENTER.....
ENTER filename....
ENTER Vector......
ENTER Br_level....
Filename CSR Vector Br_level Status
xxxxxxxx xxxxxx xxx x CONNECTED
Press RETURN if all parameters are correct,
or type 1 and press RETURN to disregard the parameters.

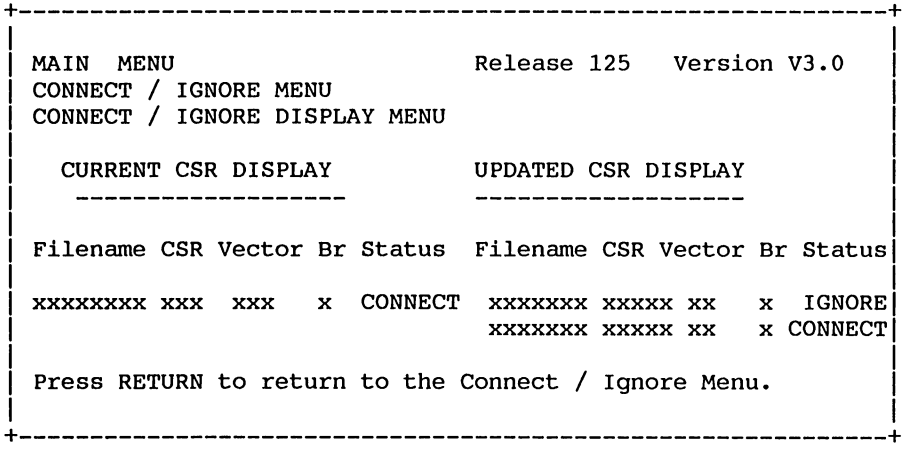
1 - goes to screen 24
return - goes to screen 23

Figure 2-4: Screen 25


MAIN MENU Release 125 Version V3.0
CONNECT / IGNORE MENU
IGNORE PARAMETER MENU
Enter the CSR address of the device to ignore and press RETURN
ENTER CSR....
Filename CSR Vector Br_level Status
xxxxxxxx xxxxxx xxx x IGNORED
Press RETURN if entry is correct,
or type 1 and press RETURN to disregard input.

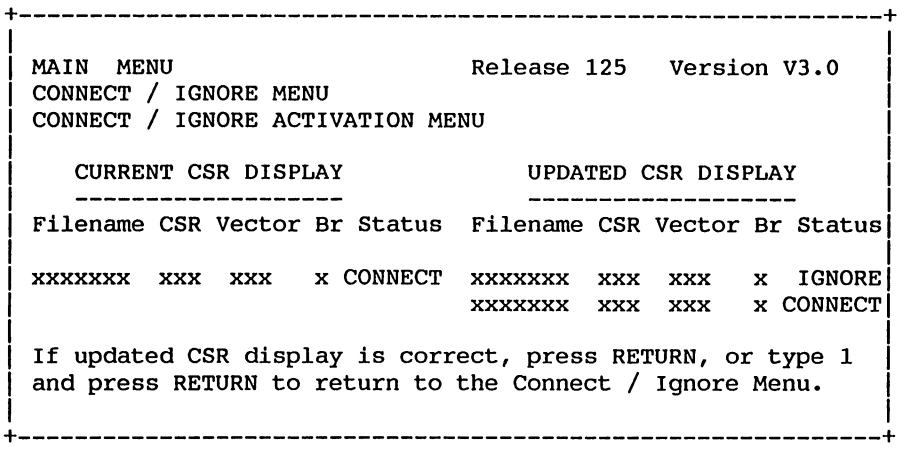
1 - goes to screen 25
return - goes to screen 23

Figure 2-5: Screen 26


MAIN MENU Release 125 Version V3.0
CONNECT / IGNORE MENU
CONNECT / IGNORE DISPLAY MENU
CURRENT CSR DISPLAY
UPDATED CSR DISPLAY
Filename CSR Vector Br Status Filename CSR Vector Br Status
xxxxxxxx xxx xxx x CONNECT xxxxxxx xxxxx xx x IGNORE
xxxxxxx xxxxx xx x CONNECT
Press RETURN to return to the Connect / Ignore Menu.

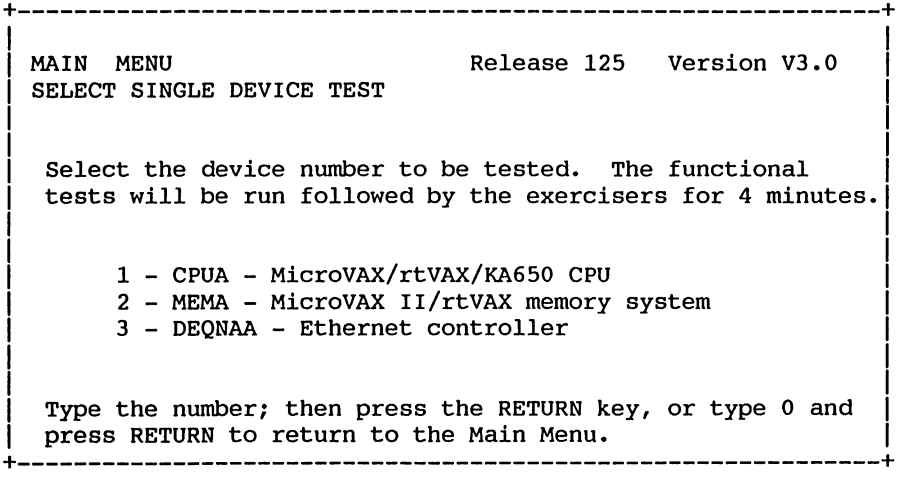
return - goes to screen 23

Figure 2–6: Screen 27


MAIN MENU
Release 125 Version V3.0
CONNECT / IGNORE MENU
CONNECT / IGNORE ACTIVATION MENU
CURRENT CSR DISPLAY
UPDATED CSR DISPLAY
Filename CSR Vector Br Status
Filename CSR Vector Br Status
xxxxxxx xxx xxx x CONNECT
xxxxxxx xxx xxx x IGNORE
xxxxxxx xxx xxx x CONNECT
If updated CSR display is correct, press RETURN, or type 1
and press RETURN to return to the Connect / Ignore Menu.

0 - goes to screen 23
1 - executes connect/ignore and goes to screen 23

Figure 2–7: Screen 28


MAIN MENU
Release 125 Version V3.0
SELECT SINGLE DEVICE TEST
Select the device number to be tested. The functional
tests will be run followed by the exercisers for 4 minutes.
1 - CPUA - MicroVAX/rtVAX/KA650 CPU
2 - MEMA - MicroVAX II/rtVAX memory system
3 - DEQNAA - Ethernet controller
Type the number; then press the RETURN key, or type 0 and
press RETURN to return to the Main Menu.

0 - goes to screen 5
1 - n executes the tests for the selected device

NOTE: *The devices listed here are the same as those listed in menu selection 2 after a SHOW CONFIGURE.*

In the CONNECT/IGNORE submenus of this feature, entering 1 or 0 has the same effect, even though the display instructions refer only to the 1.

2.1.7 Display of Release Number and Version

The disclaimer screen and the menu screens have been changed. The screens now display the release number and the version number as shown below:

```
Release 125   Version V3.0
```

This information is displayed in the upper right hand corner of the menus and disclaimer screen.

2.1.8 SHOW DISABLE Command

Version 3.0 of MDM supports the new CLI command SHOW DISABLE. This command provides information on why certain diagnostics are disabled. SHOW DISABLE works only in CLI mode. If a diagnostic raises an exception and if the diagnostic service library (DSL) catches it, the exception value (EXCEPTION), process status longword (PSL), and program counter (PC) are saved. When the SHOW DISABLE command is given, these values are displayed. See the following example:

```
MDM>>  SHOW DISABLE

MDM>>  DIS 2

MDM>>  DIS 4

MDM>>  SHOW DISABLE

      FILENAME    PC      PSL     EXCEPTION
 4    CPUA        0       0       00000000
 2    MEMA        4839    162     00000484

FILENAME - name of disabled diagnostic
PC       - program counter  (integer value, default = 0)
PSL      - process status longword  (integer value, default = 0)
ERROR    - error exception value (integer value, default = 0)
```

The example above shows that the MEMA diagnostic raised an exception that DSL was able to catch. The exception it raised was an arithmetic trap, whereas with the CPU diagnostic, it is disabled but did not raise an exception. If a diagnostic disables itself, or if a user disables the diagnostic and an exception was not raised, the PC, PSL, and EXCEPTION display

the default value zero. If the SHOW DISABLE command is given and all diagnostics are enabled, the following message is displayed:

```
     FILENAME     PC       PSL      EXCEPTION
 4   CPUA         0        0        00000000
 2   MEMA         0        0        00000000
```

If the EDEBUG SHOW MESSAGE command is used, the exception number is translated into something more meaningful. Any exception number can be translated during any EDEBUG session. If the exception number is 0, the diagnostic has disabled itself.

2.2 IOADDRES

IOADDRES informs you of devices' correct base control and status register (CSR) addresses and base vector offsets.

Use the information supplied by IOADDRES to verify and adjust devices' hardware and software settings. Also use the supplied information to add or remove a non-DIGITAL device from the configuration seen by MDM either by selecting the Main Menu's Connect/Ignore Menu option or by entering Command Line Mode (CLM).

2.2.1 Starting IOADDRES

Run IOADDRES in either verify or service mode.

- *Customers* run IOADDRES by:
  1. Selecting MDM Main Menu Option 3, "Display the System Utilities"
  2. Selecting the latter menu's "IOADDRES" option, as illustrated in Figure 2–8.

Figure 2–8: System Utilities Menu

```
MAIN MENU
SYSTEM UTILITIES

 Utility selections are:

 1 - IOADDRES

 2 - Customer Disk Drive Formatter

Type the number; then press the RETURN key
 or type 0 and press the RETURN key to return to the Main Menu.
```

- *Service personnel* and customers who have the MicroVAX Maintenance Kit may use CLM to run IOADDRES by entering the following command at the MDM prompt:

  MDM>>RUN IOADDRES

2.2.2 Running IOADDRES

MDM prompts for the count of each type of MDM-supported device on your system by displaying the information shown in Figure 2–9 one line at a time.

Figure 2–9: MicroVAX Device Address Calculator Menu

```
IOADDRES - MicroVAX Device Address Calculator, V3.0

Enter the count of LPA (LPV11) Devices ..............:
Enter the count of TSA (TSV05) Devices ..............:
Enter the count of ZZZ (RQDXn, other MSCP) Devices ...: 1
Enter the count of ZZT (TK50, other TMSCP) Devices ...: 1
Enter the count of XQA (DEQNA) Devices ..............: 1
Enter the count of DLA (DLV11) Devices ..............:
Enter the count of VVA (VSV21) Devices ..............:
Enter the count of ZZQ (DZV11, DZQ11, DFA01) Devices .: 1
Enter the count of ZZW (DRV11-W (DR11W mode)) Devices :
Enter the count of ZZB (DRV11-W (DR11B mode)) Devices :
Enter the count of DPA (DPV11) Devices ..............:
Enter the count of DMA (DMV11) Devices ..............:
Enter the count of ZZY (KMV1A, KMV1B) Devices ........:
Enter the count of IEA (IEQ11) Devices ..............:
Enter the count of DHA (DHV11, CXA16) Devices ........: 1
Enter the count of DHF (DHF11, CXF32) Devices ........:
Enter the count of VCA (VCB01) Devices ..............:
```

Figure 2–9 Cont'd. on next page

Figure 2–9 (Cont.): MicroVAX Device Address Calculator Menu

```
Enter the count of LAA (LNV11) Devices ..............:
Enter the count of LNA (LNV21) Devices ..............:
Enter the count of ZQA (Token Bus Adaptor) Devices ...:
Enter the count of DSA (DSV11) Devices ..............:
Enter the count of ADC (ADV11-C) Devices ............:
Enter the count of AAC (AAV11-C) Devices ............:
Enter the count of AXA (AXV11-C) Devices ............:
Enter the count of KWA (KWV11-C) Devices ............:
Enter the count of ADA (ADV11-DA) Devices ............:
Enter the count of AAA (AAV11-DA) Devices ............:
Enter the count of VCB (VCB02) Devices ..............:
Enter the count of DRB (DRV11-J) Devices ............:
Enter the count of QBA (DRQ3B) Devices ..............:
Enter the count of IBA (IBQ01) Devices ..............:
Enter the count of IDA (IDV11-A) Devices ............:
Enter the count of IDB (IDV11-B) Devices ............:
Enter the count of IDC (IDV11-C) Devices ............:
Enter the count of IDD (IDV11-D) Devices ............:
Enter the count of IAA (IAV11-A) Devices ............:
Enter the count of IAB (IAV11-B) Devices ............:
Enter the count of MIA (MIRA) Devices ...............:
Enter the count of AQA (ADQ32) Devices ..............:
Enter the count of CQA (DESNA) Devices ..............:
Enter the count of DQA (DRQ11-C) Devices ............:
Enter the count of KXA (KXJ11) Devices ..............:
```

Respond to each prompt as follows:

- If one or more of the devices listed on the displayed line is connected to your system, enter the count of these devices and press RETURN. MDM displays the next prompt.
- If *none* of the listed devices is connected to your system, press only RETURN. MDM displays the next prompt.

Once you have responded to all prompts, MDM displays a tally of the devices, as illustrated in Figure 2–10.

Figure 2–10: Summary Device Selections

```
Selections
Type : Count

ZZZ :  1
ZZT :  1
XQA :  1
ZZQ :  1
DHA :  1
```

MDM then displays the correct base CSR address (octal) and base vector offset (octal) of each set of devices of that family and the first available CSR address and vector offset, as illustrated in Figure 2–11. You use the available addresses to calculate CSR addresses and vector offsets for additional non-DIGITAL devices.

Figure 2–11: CSR and Vector Information

```
Device information
Type : CSR : Vector

ZZZ # 1 : 172150 : 154 (RQDXn, other MSCP)
ZZT # 1 : 174500 : 260 (TK50, other TMSCP)
XQA # 1 : 174440 : 120 (DEQNA)
ZZQ # 1 : 160100 : 300 (DZV11, DZQ11, DFA01)
DHA # 1 : 160500 : 310 (DHV11, CXA16)

First available floating CSR: 161302
First available floating vector: 320
```

2.2.3 Stopping IOADDRES or Exiting

Type "EXIT" and press RETURN to stop the program at any time. IOADDRES calculates the CSRs of the devices reported up to that time. Pressing CTRL/C terminates the program without listing CSR and vector information.

Chapter 3
Problems and Corrections

This chapter discusses problems and corrections for the current release. These corrections are divided into monitor and diagnostic problems.

3.1 Monitor Problems

Monitor problems are subdivided into five sections: Menu, CTRL/C Mode, Command Line Mode, CONFIGURE/IOADDRES, and Miscellaneous.

3.1.1 Menu Problems

3.1.1.1 Run Exerciser

When the Run exerciser is chosen in the Device Menu, the exerciser runs indefinitely. Discontinue the test by entering CTRL/C.

3.1.1.2 Settings Going Between CLM and MENU

In the change to CLM, Menu Mode settings which alter the detailed or progress messages are retained regardless of changes made while in CLM. This problem affects Menu Selection 4 (Exercise the system continuously).

3.1.2 CTRL/C Mode Problem

VCB01—Test 7 sometimes goes into the CTRL/C mode when CTRL/C is pressed once. At other times, such as when running multiple passes of test 7, pressing CTRL/C many times is necessary to enter CTRL/C mode. VCB02—Tests 1, 2, and 6, which used to hang after CTRL/C was pressed once, now enter MDM CTRL/C Mode when CTRL/C is pressed twice. The above problems may happen on more tests than indicated here.

3.1.3 Command Line Mode Problems

3.1.3.1 RUN Command

The RUN command, which is used to run the system utilities such as IOADDRES, is not listed in the help file. This command is valid for IOADDRES only.

3.1.3.2 SET TEST and SET TEST NEXT COMMANDS

SET TEST is a command available in CLM. According to the *MDM User's Guide*, the possible variations to this command are:

- SET TEST ALL—To enable all tests
- SET TEST Test_Range—To enable the tests in the test range

The command line interpreter accepts the SET TEST NEXT command. This command disables all tests from running and displays a message that the device could not be tested due to an invalid test selection. The SHOW DEFAULT command displays the test selection as follows:

```
Tests to be run:
```

3.1.4 IOADDRES and CONFIGURE Problems

3.1.4.1 DZQ and DRV11-WA

With the configuration:

```
SLT 1<----- CPU ----->
SLT 2<----- MEM ----->
SLT 3<----- QNA ----->
SLT 4<---- TK50 ----->
SLT 5<-RQDX3 - GRANT->
SLT 6<-DZQ11 - DRV11W>
```

When you use the NI kit to boot MDM, you get the following message where the date should appear:

```
34
==> MSL status returned is:
Error in either configuration of the system or loading diags.
```

It then goes to the question of menu or CLM without asking about the date or even displaying it. If you go into CLM, you get the following message:

```
Error in service settings; CALL_INDEX is:    1
config_done is FALSE:
config_stat is:
```

Then the system hangs. If you go into menu mode, you get the following message:

```
The command was aborted.
Proceedure timed out.
```

Then the system hangs. Both DZQ and DRV11-WA work when not configured with the other.

3.1.4.2 Two DRV11-WAs

The vector address which MDM determines for the second DRV11-WA does not agree with the addresses that XCON and VMS SYSGEN determine:

```
XCON and VMS
------------
1st DRV1W-SA     760240  300
2nd DRV1W-SA     760250  304

MDM
---
1st DRV1W-SA     760240  300
2nd DRV1W-SA     760250  310
```

Systems that ship from MFG are set according to XCON, so it is not possible to run MDM unless IGNORE and CONNECT commands are used to configure the second DRV11-WA. Note that the entries for the DRV11-WA in B mode are also incorrect.

The DRV11-WA is faulty in both B mode and W mode. Version 120 of MDM correctly lists the two vectors as 300 and 304, but versions 121 and higher incorrectly list the vectors as 300 and 310.

3.1.4.3 DLV11

IOADDRES configures the DLV11 at a different address than SYSGEN (VMS) does. Also, IOADDRES does not take into account that under the current version of MDM the DLV11 loads up as three or four boards. Vectors for more boards are displayed erroneously. SYSGEN apparently configures the DLVJ1 to the first floating space CSR, which is 160010. The configuration and architecture group (independent from VMS) sets board rankings and configures boards the same as MDM (ioaddres). However, MDM still loads the DLV11 as three boards.

3.1.5 Miscellaneous Problems

3.1.5.1 RA/RD

Release Notes are not placed into the SYS$HELP directory on the VMS system during installation of the RA/RD kit.

3.1.5.2 Set Time

When the time is set very small, for example 00:00:00.01 or 00:00:00.02, the diagnostic does not start. It appears to do nothing for about a minute then prints Time Out and returns to the MDM prompt. This also happens when time is set to 00:00:0.2 because 00:00:0.2 is really 00:00:.02. This malfunction happens with all diagnostics, in both exerciser and functional modes. The smallest increment allowed is in whole seconds. Using the

smallest allowable time (1 second) runs all the diagnostics, although very briefly, to completion.

3.1.5.3 MOM$LOAD Definition

The *MDM Ethernet Server User's Guide* gives instructions on making the installation of MDM permanent on the host system. However, making changes to the SYSTARTUP.COM procedure that are listed in that manual may delete pointers to the MOM$LOAD system logical. The manual instructs the user to use the command:

```
$ DEFINE/SYSTEM/EXEC MOM$LOAD 'F$TRNLNM("MOM$LOAD")', MDM$MAINT
```

If the MOM$LOAD logical name points to more than one directory, this command redefines the logical to point to the first directory listed in the original MOM$LOAD logical plus MDM$MAINT. Pointers to other directories in the original MOM$LOAD logical name are deleted. For example, if the MOM$LOAD logical pointed to ddun:[dir1], ddun:[dir2], ddun:[dir3], the new MOM$LOAD points to ddun:[dir1], MDM$MAINT. Pointers to ddun:[dir2], ddun:[dir3] are lost. Consequently, any system loading files from dir2 and dir3 does not load. Avoid this loss by making all definitions of MOM$LOAD at the same time. For example:

```
$ DEFINE/SYSTEM/EXEC MOM$LOAD SYS$SYSROOT:[SYSEXE],[dir2], MDM$MAINT
```

The F$TRNLNM lexical does not return all pointers to the translated logical in one call. It indexes each pointer (dir0, dir1,...,dirN) and returns the pointer specified in the index field of the F$TRNLNM call. In order to use this lexical to determine all pointers, an iterative procedure must be written to check all indices. See the *VAX/VMS Dictionary* for more details.

3.2 Diagnostic-Based Problems

3.2.1 Communication Devices

The following communcation devices cause diagnostic problems.

3.2.1.1 DELQA

Menu option 1, Test the System, fails if there is no loopback on the DELQA and passes if there is one. This occurs only with a KA650 and a DELQA in the same system.

3.2.1.2 DESNA

From Main Menu, select Service Menu, select Device Menu, select DESNA, and run the exerciser tests. Even if they pass, the functional tests afterwards fail. Once the failing sequence has started, the DESNA fails everything. The system must be rebooted to clear the error.

3.2.1.3 DMV11

When the DMV11 and the DRQ3B are run together on multiple passes, the DMV11 occasionally generates the following error:

```
Error 1402 - Transmit/Receive error using external loopback
```

This error occurs with both KA640 and MicroVAX boards. The DMV11 works by itself and in a system with an IBQ01; however, when the DRQ3B is added to the system, this error occurs intermittently. It does not happen right away; 30 minutes may pass.

3.2.2 Storage Devices

The following storage devices cause diagnostic problems.

3.2.2.1 DSSI

When you run the verify test 4 of the DSSI and have the drive off line, the test fails. The verify tests are supposed to run whether or not a drive is attached and on line. This is only a READ test, but still needs the DUP code to run, which does not happen if the drive is off line.

3.2.2.2 KDA50-QA

There are two problems with KDA50-QA:

1. All tests done under SERVICE mode from verify, exerciser, and utility fail intermittently during normal testing sequence. The problem is not consistently reproduced. Replacing the M7185 and M7186 boards reduced the frequency of failure, but did not eliminate the problem.

   ```
   KDA50QA failed in SERV/UTILITY mode test.
   " Error #19
   DUP program timeout.  DUP program halted.
   KDA50Q disk controller. "
   ```

2. When you run Verify Mode testing on the KDA50-QA with an RA82 disk drive attached, on line, and spun up, both the functional and the exerciser tests pass without problems; however, if these tests are run with the drive spun down (run/stop switch out), both tests fail with the following message:

   ```
   An unrecoverable error has occurred on drive number 0.
   Error occurred during MSCP Online command.
   MSCP Command Reference Number: 00000003.
   MSCP Command status: Drive unit offline
   MSCP status subcode: No volume mounted or run/stop switch
   is off
   ```

```
KDA50QA - Error Number 47       29-JUN-1988 08:00:00.48
Drive became "unit-offline" during a MSCP operation.
Fixed media disk drive
KDA50QA failed.
```

This same message occurs when either functional test 4 or exerciser test 1 is run.

3.2.2.3 RRD50

Running utility test 5 takes longer than 1 hour. During that time no progress messages are displayed to inform the user that the diagnostic is still running. The MDM monitor displays the message "return status 34" indicating no indicators from the diagnostic have occurred during that time.

3.2.2.4 TU81

Utility test 1 for the TU81 diagnostic prompts the user for information about the desired testing parameters on the TU81. First, it asks the user if he wishes to change the default parameters. If there are no changes, utility test 2 begins; if there are changes, the user is asked for the desired tape format, whether to enable caching, and for the desired record size. Finally, the user is prompted as follows:

```
Selectable Data Patterns ?       (n) :
```

If the user responds with a Y (yes), then a list of pattern numbers and their appropriate descriptions are displayed, for example:

```
PATTERN _#        DESCRIPTION

0             RANDOM PATTERNS SELECTED FROM BELOW (DEFAULT)
1             ALL ZEROS
.
.
.
16            INDIVIDUAL PEAK SHIFT PATTERN

Type in Data pattern Number 0 to 16.
```

If a number less than 0 or greater than 16 is entered, it is accepted and echoed back to the screen, and the utility continues. The utility apparently hangs; CTRL/C and HALT must be entered in order to exit.

3.2.3 Miscellaneous Problems

This section contains problems with devices other than communication and storage.

3.2.3.1 KXJ11-CA

The utility test for the KXJ11 has two parts. The first part permits DMA and shared memory testing of the KXJ11; the second part allows the user to hook up a remote terminal to the KXJ11. In the general set-up instructions for this second part of the test, the user is prompted as follows:

```
...Press the break key on the terminal. This puts you into
ODT mode. Type '204G' on the terminal.  A Functional test will
begin...
```

In order for this second part of the utility test to work correctly, the user should type in 200G on the terminal instead of 204G.

3.2.3.2 LANCE

Exerciser tests for LANCE take between 5 and 10 minutes. During this time, no progress message is displayed. The MEM diagnostic runs for a shorter time, but is forced to display progress messages every 2 minutes. Most exercisers run for only 1 minute.

3.2.3.3 MEM—KA650/KA640 MEM Diagnostics

When you do a SHOW CONFIGURE for either a KA640 or a KA650, the MEM just comes up as:

```
MEM  Enabled
```

If you do this for a MicroVAX CPU, MDM displays the total amount of available memory:

```
MEM Enabled 5 Megabytes
```

If you do a SHOW CONFIGURE FULL, the MicroVAX board prints this summary/total line and then lists the different modules. The KA650 and KA640 boards just list the different memory modules; they do not give the total amount of MEM.

3.2.3.4 MIRA

There are two problems related to MIRA:

1. The SETUP message for the MIRA is unclear. Test groups indicated in the message have no correlation with the MDM tests that MIRA actually runs. One line in the SETUP message states "no application, no MDM."
2. When running utility tests 3, 4, or 5 on the MIRA, after the individual general SETUP messages are displayed, the user is prompted to enter a 1 or 2, followed by a RETURN, corresponding to the particular mode (maintenance or installation) that the user is in. If the user enters an out-of-range number (either 0 or greater than 2), the cursor drops to the beginning of next line and waits there. Then, if the user enters either a 1 or 2 and presses RETURN, the test continues according to which value was entered.

3.2.3.5 VSV21

Since the Service mode tests require that a loopback be attached to the VSV21 in order for them to pass, a SETUP message should tell the user to connect the required loopback connector before running these tests.

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